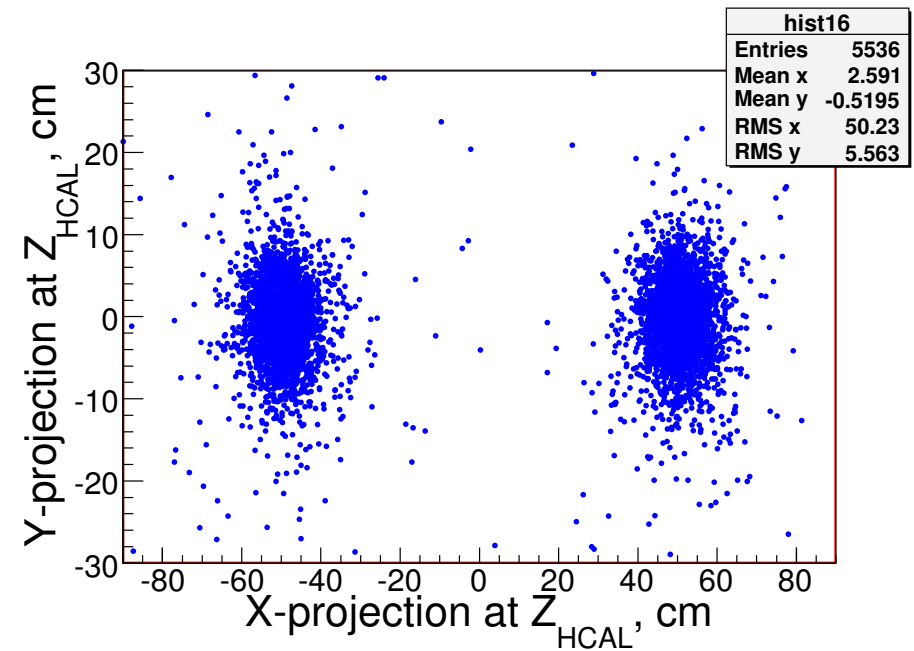
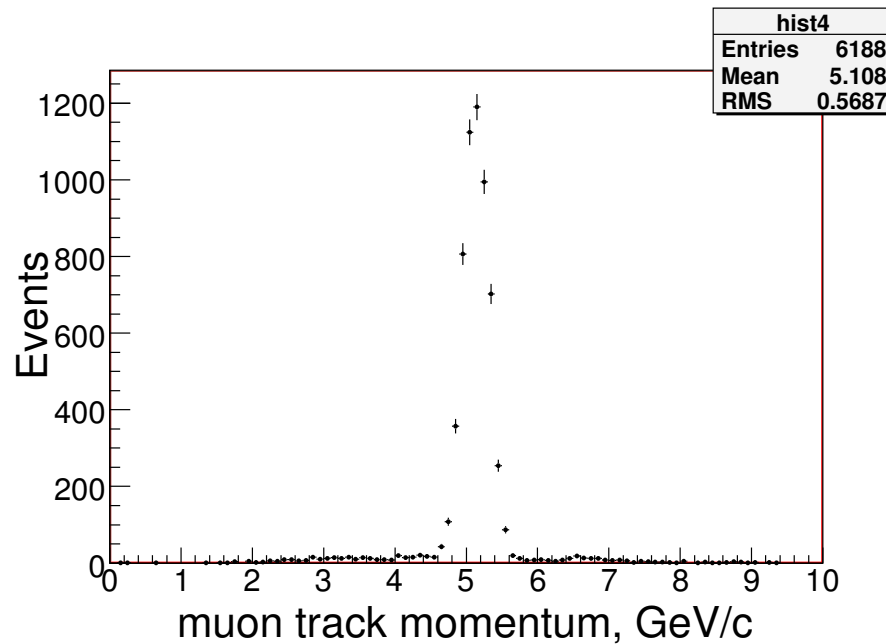
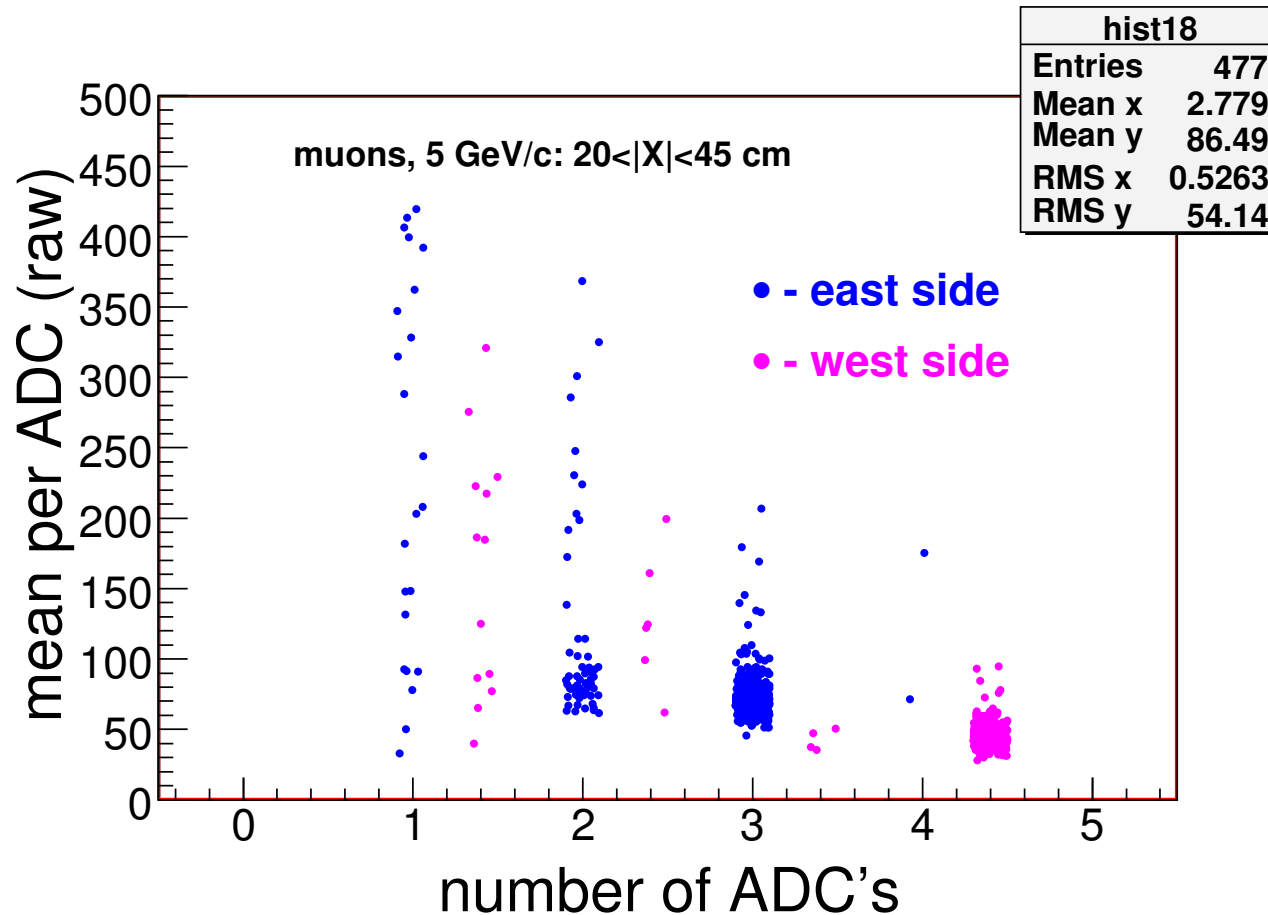


muon runs



Dedicated 5GeV Muon runs for Calorimeter calibration - 13916, 13917, 13918 and 13919. Left plot presents the track momentum based on Chambers 1-6 for above named runs. For further analysis the tail events were dropped (below 4.7 and above 5.5 GeV/c). Right plot shows the projections of tracks into Z_{HCAL} . HCAL aperture is ± 50 cm. It looks that some particles might missed (or exit during passage) HCAL volume. The negative projections (East side) are tracks with +5 GeV/c, the positive projections (West side) are -5 GeV/c tracks.

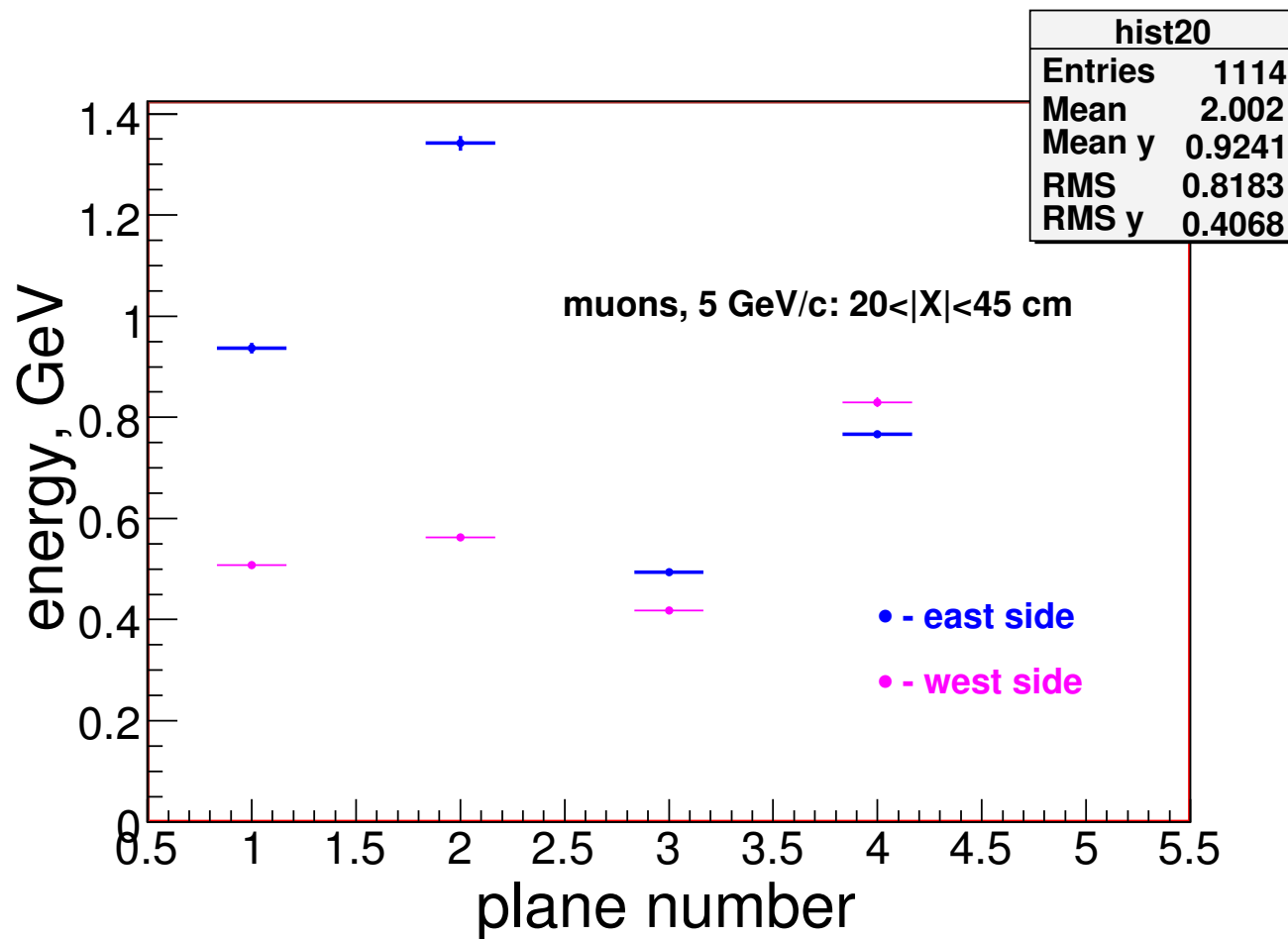
mean - vs - nADC



The mean deposition per ADC vs the number of ADC's. Cut: projected tracks are within $-45 < X < -20$ cm (East side) or $20 < X < 45$ cm (West side). The number of ADC for West side is shifted to the right by 0.4 for easy comparison purpose.

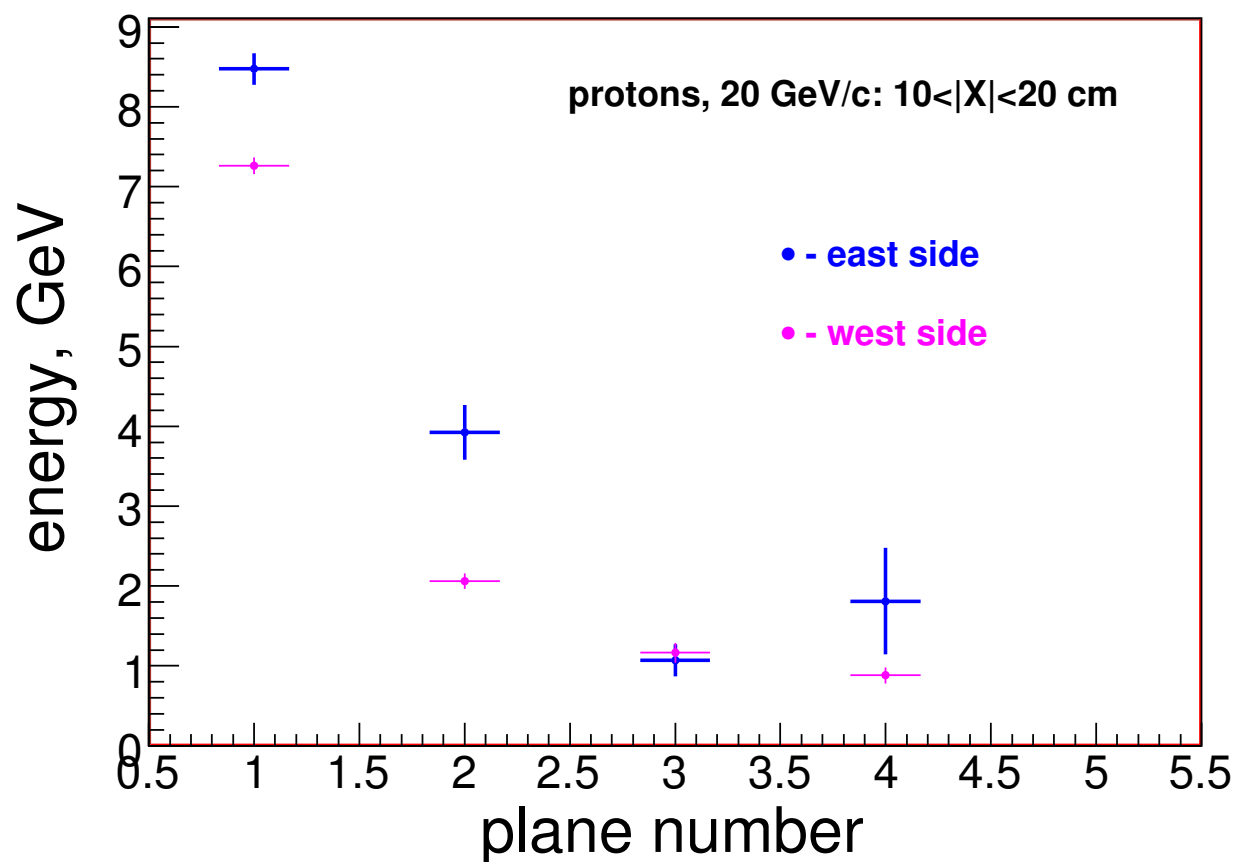
Note that the muon tracks should have the lowest deposition into HCAL and highest number of ADC's. Where the blue events with 4 ADC's?

longitudinal profile



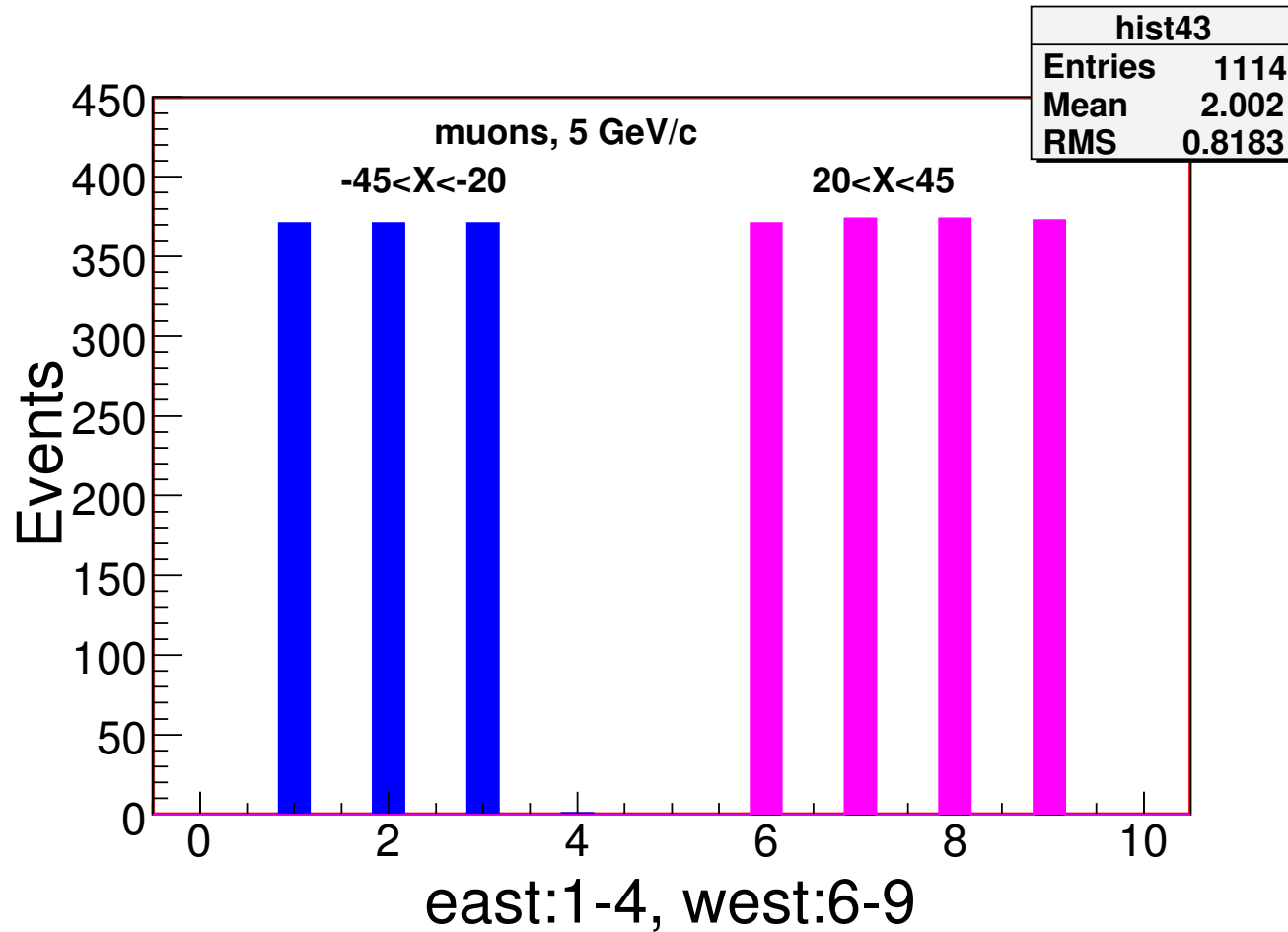
The longitudinal profiles for East and West side ADC/phototubes. Cuts: a) the projected tracks are within $20 < |X| < 45$ cm and b) select the lowest deposition events with at least 3 ADC's for East side and 4 ADC's for the West side. The plot suggests that the yield of ADC's should be equalized to the arbitrary average value and then to do the energy calibration.

longitudinal profile, cont



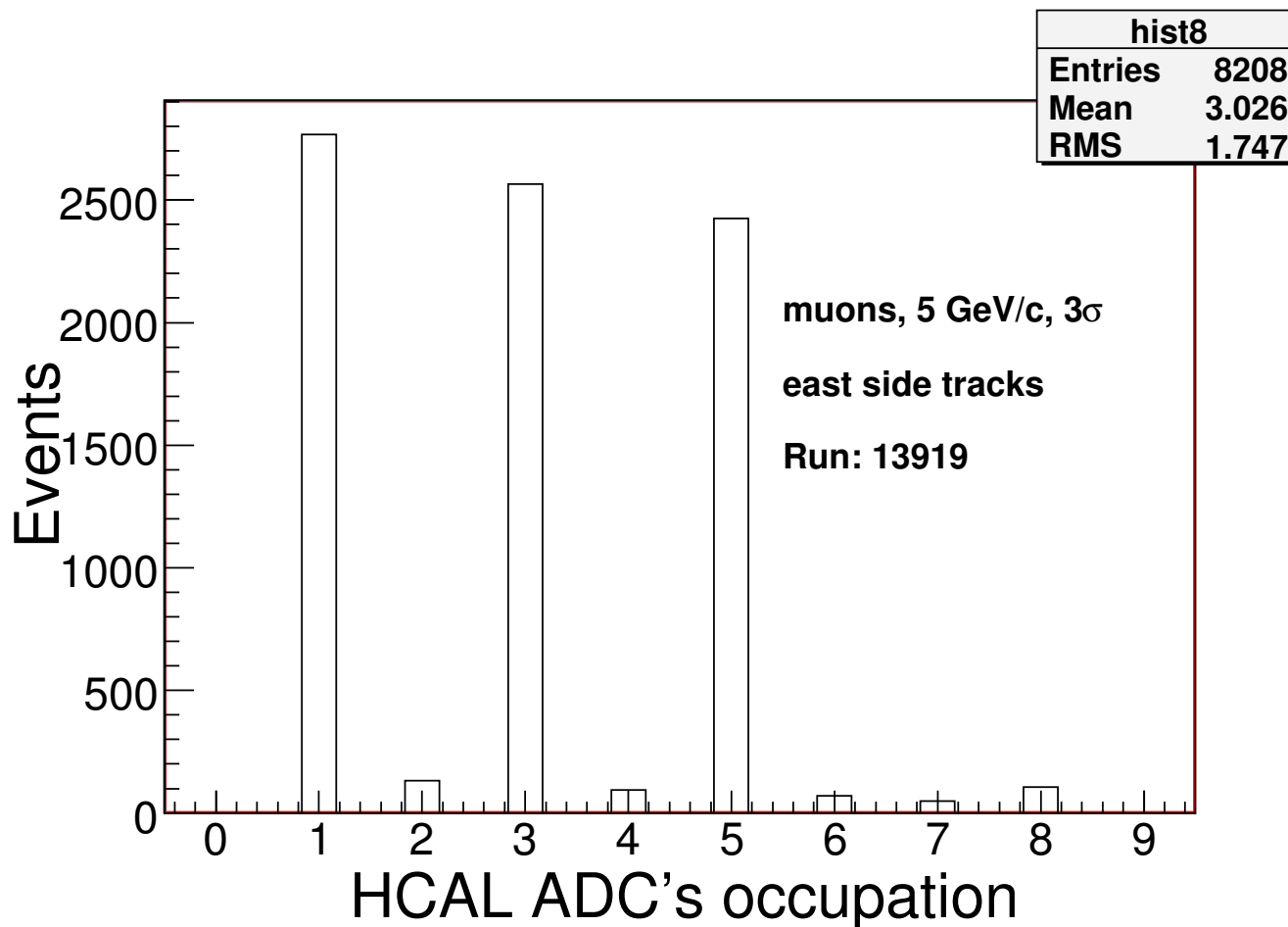
The longitudinal profiles for East and West side ADC/phototubes using 20 GeV/c data. Cuts: a) the projected tracks are within $-20 < X < -10$ cm on East side and $10 < X < 20$ cm on West side and b) EMCAL showers are match with incoming track projection. The plot suggests that the yield of East vs West ADC's are differ.

what is with ADC 7?



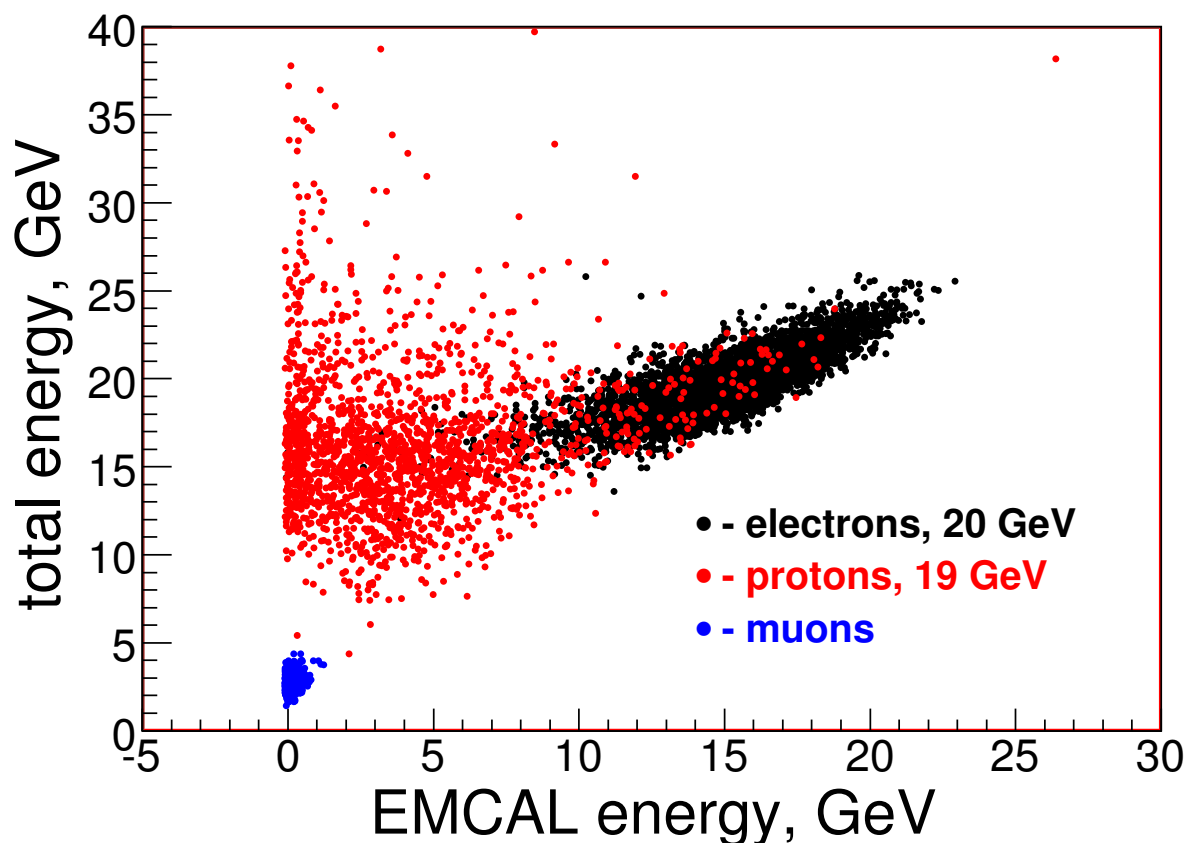
HCAL ADC's occupation for East and West side ADC/phototubes. Cuts: a) the projected tracks are within $20 < |X| < 45$ cm and b) select the lowest deposition events with at least 3 ADC's for East side and 4 ADC's for the West side.

what is with ADC 7? cont



One more look on HCAL ADC's occupation using +5 GeV/c muon data (run 13919). For this run most of the projected tracks are on East side. Cuts: apply 3σ cut to select the pedestal. All early presented plots are done with 5σ . What is a reason for the low yield for channel 7? Now we know that is not because of the wrong pedestal finding.

total - vs - emcal



Updated muon cuts for the total vs EMCAL plot: a) the projected tracks are within $20 < |X| < 45$ cm and b) select the lowest deposition events with at least 3 ADC's for East side and 4 ADC's for the West side. Note: the total energy for muons and protons are off due to of the HCAL's relatively high channel-to-channel variations and/or more significant East vs West dependence.